Spectum of sino-nasal polyposis on cross sectional imaging in a rural population visiting a rural medical college.

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Abstract :

Background : Nasal polyps are common pathologies, usually seen in teens and young adults of both genders. Their etiology remains unclear, but they are known to have association with allergy, asthma, infection, cystic fibrosis, and aspirin sensitivity. They present with nasal obstruction, anosmia, rhinorrhoea, post nasal drip, and less commonly facial pain. Clinical examination reveals single or multiple grey polypoid masses in the nasal cavity. Computerized tomography allows evaluation of the extent of the disease and is essential if surgical treatment is to be considered. **Aims:** To study spectrum of sino - nasal polyposis on its imaging features of CT. **Materials & Method:** Multidetector CT is now routinely used. Imaging should be reviewed with a wide window width of 1500–2500 HU, centred at 100–400 HU. Whenever soft-tissue abnormality is detected, its attenuation should be assessed with narrow window widths. Submillimetre slices are reconstructed, with multiplanar reformats allowing accurate delineation of sinonasal anatomy and localisation of pathology, its extent and complications.Spectrum of sino-nasal polyposis in 100 patients who were clinically diagnosed to suffer from polyps were imaged using CT scan. **Results :** Out of 100 patients studied, small polyps in the middle meatus were (16) and polyp causing middle meatal blockage(28),polyps extending beyond middle meatus without complete obstruction were seen in (24), massive nasal polyposis seen in (18), chronic sinusitis with polyp were seen in (14) patients. **Conclusion :** Sino-nasal polyposis has a wide spectrum of presentation on cross sectional imaging. Most commonly seen is polyp causing middle meatal blockage. **Key Words :** Sino- nasal polyposis, CT scan, Imaging features.

Introduction : Nasal polyps (NP) are benign lesions arising from the mucosa of the nasal sinuses (commonly at the out flow tract of one or more of the sinuses) or from the mucosa of the nasal cavity. Having an uncertain etiology & a tendency to recur, they represent a challenging diagnosis for the physician to treat. [1,2]

Clinically Sino-nasal Polyposis has a wide spectrum of presentation. They may either be totally asymptomatic or may present with severe symptoms like dysphagia & even hoarseness of voice.[3,4]

While cross sectional imaging studies like CT scan may accurately demonstrate the extent of such lesions, Coronal CT features included polypoid masses in the nasal cavity, partial or complete pansinus opacification, enlargement of infundibulam, bony attenuation of the ethmoid trabeculae and nasal septum, opacified ethmoid sinuses with convex lateral walls and air - fluid levels. Histopathological evaluation is necessary for etiological confirmation.[4]

Management of polyposis involves a combination of medical therapy and surgery. There is good evidence for the use of corticosteroids (systemic and topical) both as primary treatment and as postoperative prophylaxis against recurrence. Surgical treatment has been refined significantly over the past twenty years with the advent of endoscopic sinus surgery and, in general, is reserved for cases refractory to medical

treatment. Recurrence of the polyposis is common. [5,6]

Materials and method : It is an observational study , which is conducted at rural Medical college of the 100 patients diagnosed for sino-nasal polyposis on clinical grounds and confirmed on Imaging studies. All age groups and genders are included, patients operated earlier for sinusitis or any PNS surgery were excluded.

Permission of institutional ethical and research cell, & informed written consent from patients were obtained prior to study.

CT is regarded as the "gold standard" in the primary imaging of inflammatory sinonasal lesions. Multi detector CT is now routinely used. Imaging should be reviewed with a wide window width of 1500–2500 HU, centred at 100–400 HU. Whenever soft-tissue abnormality is detected, its attenuation should be assessed with narrow window widths. Coronal and axial views were obtained from the scout images using the head top as landmark and data from the head top to the sterno-clavicular joint were collected using continuous scanning images in the helical mode (slice thickness: 1.25mm, interval: 0.8 mm, KV: 120).

Results :

Table -1: Imaging wise spectrum of the spread of polyp

Sr no	Spectrum of spread of polyp	No. Of cases.	Total no of cases.
1	Small polyps in the middle meatus/edema	16	100
2	Polyp causing middle meatal blockage	28	100
3	Polyps extending beyond middle Meatus without complete obstruction	24	100
4	Massive nasal polyposis	18	100
5	Chronic sinusitis with polyp	14	100

Fig. - 1. Small polyps in the middlemeatus/ edema

Fig. 2. Polyp causing middlemeatal blockage

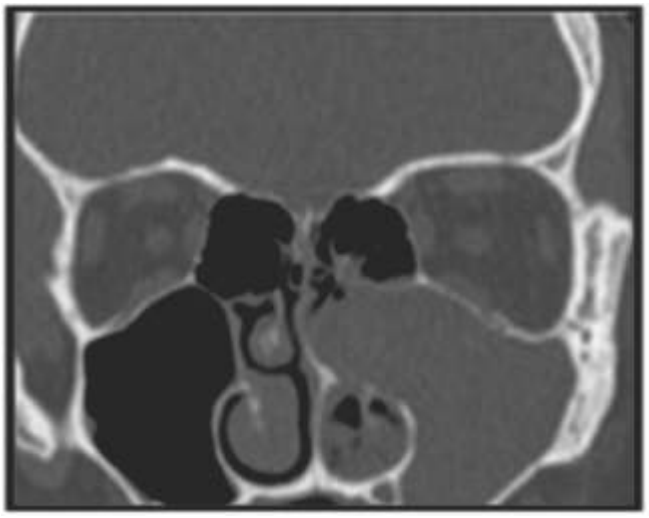

Fig. - 3. Polyps extending beyond middlemeatus withoutcomplete obstruction

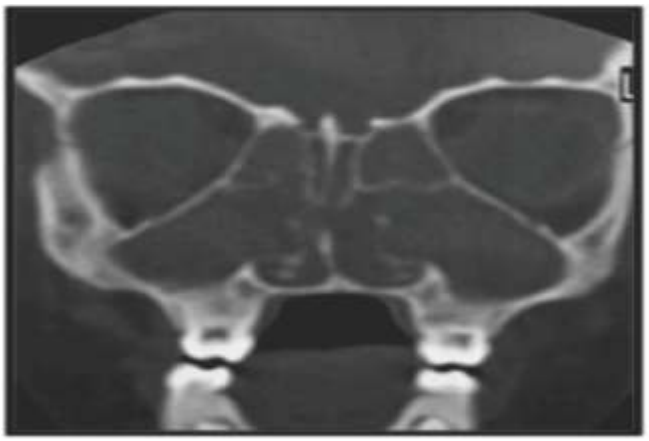

Fig. - 4. Massive nasal polyposis

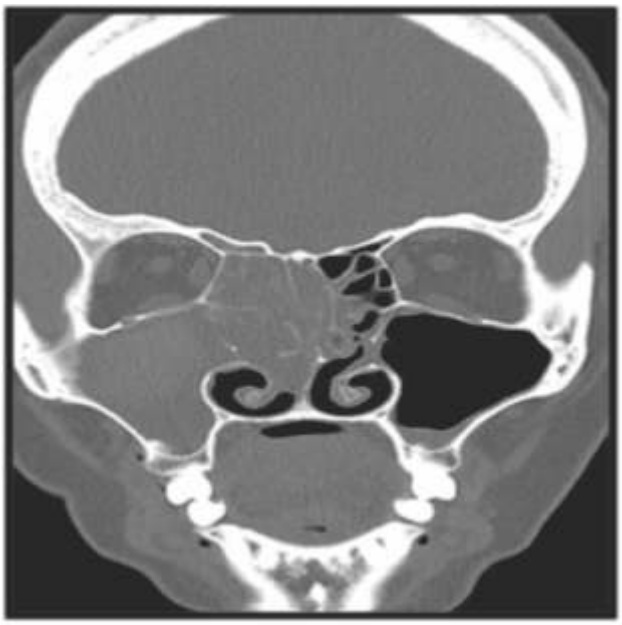

Fig. - 5. Chronic sinusitis with polyp

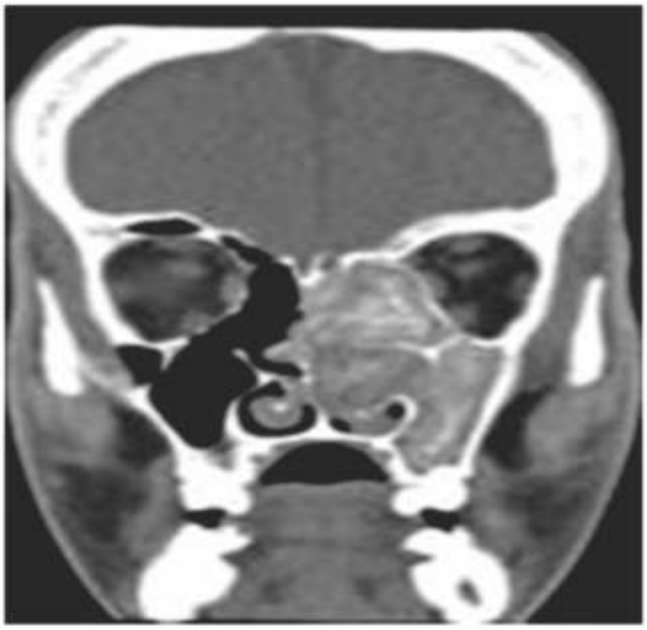

Fig. - 6. Fungal sinusitis with polyp

Discussion : Sinonasal polyposis is a typically extensive process with involvement of both the nasal cavity and the paranasal sinuses. CT findings of sinonasal polyposis include polypoid masses in the nasal cavity, polypoid soft tissue masses in the sinuses, partial or complete pansinus opacification and enlargement of the infundibula. Other findings include attenuation of the nasal septal and sinus trabeculae and opacified ethmoid sinuses with bulging lateral walls. Chronic bony changes with thickening and sclerosis can be seen[7,10].CT is a preferred method for diagnosis since it is able to delineate bony the paranasal sinus anatomy. These features are best appreciated on true coronal or coronal reformat scans. Polyps are seen hypodense but it may have a higher density and HU values if they are long standing and/or have an associated fungal infection. A contrast scan is not necessary but may demonstrate peripheral enhancement.[8]

Out of 100 patients studied, it was observed that sino-nasal Polyposis has a wide spectrum of presentation on cross sectional imaging as described in the (Table 1). Most commonly seen was polyp causing middle meatal blockage. Polyps extending beyond middle meatus without complete obstruction is secondly common. Although chronic sinusitis with polyp is the less commonly seen as compared to other patterns, its spectrum is not rare.

Studing spectrum of sinonasal polyposis –Small polyps in the middle meatus/edema, It is seen as small soft tissue density or small polyp shaped hypodense lesion involving middle meatus, although the patients are asymptomatic, it is commonly observed finding on cross sectional imaging (Figure1)

Polyp causing middle meatal blockage – It exits the antrum via the ostium. This causes an enlargement of ostia. Radiologically it appears like a dumbbell because of the constriction present in the midline (ostial exit point). In these patients the medial wall of the maxillary sinus bows into the nasal cavity. This can be clearly visualised in the CT scan images. (Figure 2)

Polyps extending beyond middle meatus without complete obstruction (Figure 3)

As the polyp extend beyond middle meatus to the drainage channels of ethmoidal and frontal sinuses (middle meatus) can cause opacification of those sinuses also there by making it difficult to identify the exact origin of the nasal polyp.

Extensive mucosal polyps occupying and obliterating the nasal cavity and the paranasal sinuses usually, they are hypodense (figure 4), but may be hyperdense due increased protein content or fungal infection associated local benign bone remodeling or erosion, enlargement of infundibula, attenuation of the ethmoid sinus walls and nasal septum (Figure 5 and 6), occasionally sparing of the inferior nasal meatus ,truncation of middle turbinate opacified ethmoid sinuses with convex lateral walls and air-fluid levels a concurrent fungal sinus infection may be present.[9,10]

Conclusion : Sino-nasal Polyposis has a wide spectrum of presentation on cross sectional imaging.Most commonly spectrum observed is polyp causing middle meatal blockage.Polyps extending beyond middlemeatus without complete obstruction is secondly common.

Although chronic sinusitis with polyp is the less commonly seen as compared to other patterns, its spectrum is not rare.

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